

CONNECTICUT RIVER FLOOD CONTROL PROJECT

CHICOPEE, MASS.

CONNECTICUT RIVER, MASSACHUSETTS

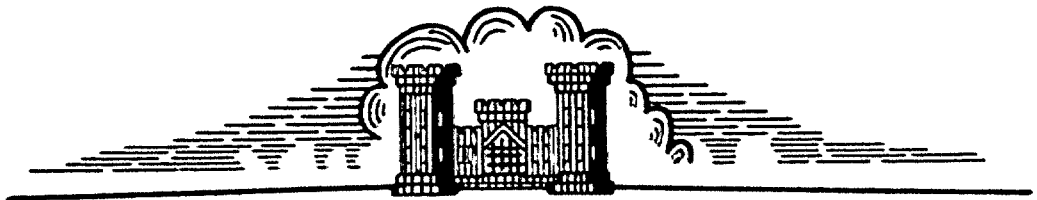
SPECIFICATIONS

FOR

DWIGHT PUMPING STATION

EQUIPMENT

ITEM C.3b - CONTRACT



1940

CORPS OF ENGINEERS, U.S. ARMY

U. S. ENGINEER OFFICE

PROVIDENCE, R. I.

CONNECTICUT RIVER FLOOD CONTROL PROJECT

SPECIFICATIONS

FOR FURNISHING EQUIPMENT FOR DWIGHT PUMPING STATION

CHICOPEE, MASSACHUSETTS

MAY 9, 1940

(ISSUED JUNE 21, 1940)

CORPS OF ENGINEERS, U. S. ARMY

U. S. ENGINEER OFFICE

PROVIDENCE, R. I.

No. _____

Bidder _____

Invitation No. 699-40-387

(Do not write above this line)

STANDARD GOVERNMENT FORM OF INVITATION FOR BIDS
(Supply Contract)War Department
United States Engineer Office
Providence, Rhode Island
June 21, 1940

SEALED BIDS, in duplicate, subject to the conditions named herein, will be received until 3:00 p.m., Eastern Daylight Saving Time, July 25, 1940, and then publicly opened, for furnishing pumping station equipment as called for in the accompanying schedule.

1. Drawings. - The drawings which will become a part of this contract are designated in Paragraphs 1-02 and 1-03 of the specifications. Where copies of drawings are requested, a deposit of \$10.00 will be required to insure their return. This deposit should be in the form of a United States money order or certified check, made payable to "The Disbursing Officer, U. S. Engineer Office, Providence, Rhode Island." The \$10.00 deposit for each complete set of drawings will be refunded upon return of said drawings in good condition within 60 days after date of opening bids.

2. Information required of bidder. - Each bidder shall submit with his bid and as a part of his proposal two sets of specifications of the equipment he proposes to furnish, including pump and engine characteristic curves, detailed description, general drawings, and photographs or illustrations showing the general construction and principal dimensions of the equipment. The bidder shall also submit with his bid all the information asked for in the accompanying Data Sheets. Statements so made by the bidder are intended to be, and are, express warranties, and as such will form a part of any contract that may be entered into pursuant to said proposal. Failure on the part of a bidder to furnish all of such required information will render his bid informal and may cause its rejection.

3. Guarantee will be required with each bid as follows: Bid bond, Standard Form No. 24, will be executed in a penal sum approximately equal to and not less than 20 percent of the total amount of the bid. Individual sureties will justify in sums aggregating not less than double the penalty of the bid bond. (See Paragraphs 8 to 11, Instructions to Bidders.)

4. Performance bond will be required as follows: A performance bond with good and sufficient surety or sureties, for the protection of the United States, Standard Form No. 25, will be executed in a penal sum approximately equal to and not less than fifty percent (50%) of the full amount of the consideration of the contract.

5. Liquidated damages for delay will be prescribed. (See Paragraph 1-06 of the specifications and Paragraph 5 of "Directions for Preparation of Contract" appearing on page 6 of U. S. Standard Form No. 32 (Revised).)

6. Partial payments will be made. (See Paragraph 1-07 of the specifications.)

7. Articles on patents will be made a part of the contract. (See Paragraph 1-20 of the specifications.)

8. Preference for domestic articles will be made a part of the contract. (See bid form and Article 13 of the contract.)

9. Adjustment of contract prices by reason of changes in Federal, State, or local taxes will be made. (See Paragraph 1-21.)

10. Bids must be submitted upon the standard Government form of bid and the successful bidder will be required to execute the standard Government form of contract for supplies, U. S. Standard Form No. 32 (Revised).

11. Experience. - After the bids are opened, any bidder may be required by the contracting officer to state whether he is now or ever has been engaged on any contract or other work similar to that proposed, the year in which it was done, and the manner of its execution, and to give such other information as will tend to show his ability to prosecute vigorously the work required by these specifications. The bid of any bidder who does not comply promptly with such a request may be rejected.

12. Bid and contract. - a. The bid form has an entry for each item on which quotation will be given or payment made, and no other allowances of any kind will be made unless specifically provided for in the specifications or the contract, or adjustments under Article 3 of the contract.

b. The quantity of material delivered in the unit given and the unit price stated by the bidder in the accepted bid will determine the total payment to accrue under the contract. The unit price bid must allow for all collateral or indirect cost connected with it.

c. Alternate bids will not be considered.

13. Award of contract. - a. Subject to the rights herein reserved, the work will be awarded as a whole to one bidder. The work will be awarded to the lowest responsible bidder or bidders, proposing to furnish equipment conforming to the requirements of the specifications. Item 1-a will include the 30-inch pumps, Item 1-b will include the gasoline engines and Item 1-c will include the right angle gear units, as described in Paragraph 1-01 b of the specifications.

b. Bidders shall bid on the work as a whole for Item 1. Bidders shall fill in each space in the schedule on which they are bidding.

c. A bid may be rejected if the bidder fails to submit the information required with his bid or cannot show that he owns, controls by firm option, or can procure the necessary equipment or materials to make delivery at the time prescribed herein.

d. The right is reserved, as the interest of the Government may require to reject any and all bids, and to waive any informality in bids received.

14. Walsh-Healey Act. - If the amount of the contract entered into pursuant to this advertisement exceeds \$10,000.00, the provisions of the Act of June 30, 1936, Public No. 846, 74th Congress, and the regulations adopted by the Secretary of Labor pursuant thereto will apply. If the contract does not exceed \$10,000.00, the provisions of the Act will not apply and Paragraph 15 of the Invitation, and Paragraphs 1-22, 1-23, 1-24, 1-25, and 1-26 of the specifications will be inoperative.

15. Manufacturer or regular dealer. - A bidder or contractor shall be deemed to be a "manufacturer" or "regular dealer" within the meaning of Section 1 (a) of the Walsh-Healey Act, if he falls within one of the following categories:

a. A manufacturer is a person who owns, operates, or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

b. A regular dealer is a person who owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles, or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and sold to the public in the usual course of business.

Except as exempted by the Secretary of Labor, every bid received from any bidder who does not fall within one of the foregoing categories shall be rejected.

16. Submission of bids. - Envelopes containing bids must be sealed, marked, and addressed as follows:

Bid for Dwight Pumping
Station Equipment
To be opened at 3:00 p.m.
July 25, 1940

To: The District Engineer
United States Engineer Office
819 Industrial Trust Building
Providence, Rhode Island

Invitation No. 699-40-387

NOTE:- See Standard Government Instructions to bidders and copy of the Standard Government form of contract, bid bond, and performance bond, which may be obtained upon application.

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WAR DEPARTMENT

APPROPRIATION: 21x3113 FLOOD CONTROL, GENERAL

SPECIFICATIONS FOR FURNISHING EQUIPMENT FOR DWIGHT PUMPING
STATION, CHICOPEE, MASSACHUSETTS

SECTION I. GENERAL PROVISIONS

1-01. Work to be done. - a. The work provided for herein is authorized by the Flood Control Act approved June 28, 1938 (Public No. 761, 75th Congress).

b. The work to be done consists of designing, constructing, and furnishing in accordance with these specifications and the drawings mentioned in Paragraphs 1-02 and 1-03 hereof, the following equipment:

(1) Three 30-inch vertical, single stage, propeller type pumps complete with discharge piping, gate valves and flap valves.

(2) Three 4-cycle, heavy-duty, stationary-type, internal combustion engines complete with silencers and exhaust piping, for driving the 30-inch pumps.

(3) Three right-angle gear units for connecting the pumps and gasoline engines.

c. The equipment will be unloaded from the carrier at Chicopee, Massachusetts, transported to the site, and installed by other agencies. Anchor bolts and other metal items to be embedded in concrete together with the necessary templates shall be shipped in advance of the delivery of equipment on the work, as directed by the contracting officer.

d. It is the intent of these specifications to secure for the Government the pumping units, gasoline engines, right-angle gear drives, piping, and valves complete in all respects and ready for installation, and the above condition shall be complied with whether all parts of the assemblies are specifically mentioned or not.

1-02. Drawings furnished by the Government. - The work shall conform to the drawings marked "Connecticut River Flood Control, Dwight Pumping Station Equipment, Chicopee, Massachusetts", as indicated below, which form a part of these specifications and are filed in the United States Engineer Office, Providence, Rhode Island. These drawings show the general arrangement of the equipment, and certain required and limiting dimensions, but are not to be taken as defining the detailed design of the equipment.

LIST OF DRAWINGS

<u>Sheet No.</u>	<u>Title</u>	<u>File No.</u>
1	Project Location and Index	CT-4-2587
2	General Arrangement No. 1	CT-4-2588
3	General Arrangement No. 2	CT-4-2589
4	Plumbing No. 1	CT-4-2590
5	Plumbing No. 2	CT-4-2591
6	Gasoline Piping No. 1	CT-4-2592
7	Gasoline Piping No. 2	CT-4-2593
8	Exhaust Piping	CT-4-2594

Ten sets of prints of the drawings prepared by the Government will be furnished the contractor upon request without charge. Additional prints will be furnished upon request, at the cost of printing.

1-03. Drawings required of contractor. - a. Detail. - Within 10 calendar days after receipt of notice to proceed, the contractor shall submit to the contracting officer for approval, assembly and detail drawings in duplicate to fully demonstrate that the equipment to be furnished under the contract will conform to the provisions and intent of these specifications. In the event that the contracting officer shall find that the drawings as submitted by the contractor are in accord with acceptable practice and meet the requirements of the specifications, the contracting officer will return one set of said drawings with his approval within 7 days after their receipt at the U. S. Engineer Office in Providence, Rhode Island; otherwise said drawings will be returned to the contractor within the said 7-day period with a statement of the points wherein they have been found unsatisfactory, in which latter case the contractor shall proceed at once to revise said drawings until they have been found satisfactory by the contracting officer and are approved by him. After approval, the contractor shall furnish the contracting officer six prints of each approved drawing. Each print submitted for approval shall have, in the lower right-hand corner just above the title, a white space 3 inches by 4 inches in which the contracting officer can indicate the action taken. All of these drawings form a part of the contract but approval of drawings by the contracting officer shall not relieve the contractor of full responsibility for the correct fitting of parts and satisfactory assembly.

b. Erection drawings. - Before delivery of the equipment, the contractor shall furnish the contracting officer six prints of erection drawings indicating the relationship of all match marks painted or stamped on the several parts.

1-04. Contractor's guaranty. - The contractor guarantees the equipment furnished by him against defects of design, material, and workmanship for a period of one year after the date of acceptance and any parts proving defective within that time shall be promptly replaced by him without cost to the Government.

1-05. Time of delivery. - Parts to be embedded in concrete shall be delivered at Chicopee, Massachusetts, within 90 calendar days, and the remainder of the equipment within 150 calendar days, time being computed from the date of receipt by the contractor of notice to proceed.

1-06. Liquidated damages for delay. - If the contractor fails or refuses to complete the delivery of all the equipment included in the contract within the time stated in Paragraph 1-05, plus any extensions duly granted under the terms of the contract, the contractor shall pay to the Government as liquidated damages the sum of twenty-five dollars (\$25.00) per calendar day of delay.

1-07. Payment. - a. Eighty (80) percent of the contract price will be paid upon delivery of the equipment at Chicopee, Massachusetts, and receipt of all required drawings and properly executed invoices.

b. When the terms of the contract have been fully complied with, and all the equipment has been installed, tested, and accepted by the contracting officer, final payment will be made of the balance due under the contract .

1-08. Packing and shipment. - All parts likely to be lost or damaged in shipment shall be adequately boxed, or crated, and each box or crate shall be marked to show the parts contained therein. All exposed finished surfaces on large parts shall have wooden pads bolted on, or shall be otherwise properly protected. The contractor shall provide all lumber, bolts, etc., necessary for proper protection.

1-09. Marking. - All parts of the equipment shall be marked and match-marked for identification and to facilitate field assembly.

1-10. Weighing. - The contractor shall weigh all completed parts and accessories on accurate scales, and the complete list of all such net weights, exclusive of boxes, crates, or skids, shall be furnished the contracting officer. The net weight of each of the larger pieces shall also be painted on the piece or stated on a tag securely attached thereto.

1-11. Manufacturer's name plate. - The contractor shall attach a small brass name plate on the principal parts of each unit, giving the manufacturer's name and address, and the principal rating data of the equipment.

1-12. Work covered by contract price. - The contractor shall, under the contract unit price, prepare all necessary shop drawings; furnish all material and labor needed to complete the work specified herein and as required by the contracting officer to carry out the contract in good faith, which contemplates all equipment delivered complete including accessories, in good working order, of good material, and with accurate workmanship, skillfully fitted and properly connected.

1-13. Inspection. - The work will be inspected in accordance with Article 4 of the contract by inspectors appointed by the contracting officer. The inspectors will make a rigid inspection of all materials and work done and any material or workmanship found to be defective or not in accordance with the plans and specifications will be rejected and shall be replaced by satisfactory material or workmanship without charge to the Government. The presence of the inspector will not relieve the contractor or his responsible agent of any responsibility for the proper execution of the work. The acceptance of any material or finished member by an inspector shall not prevent subsequent rejection if such material or member is later found to be defective.

1-14. Standard test and quality. - a. All materials, supplies, and parts and assemblies thereof, entering into the equipment to be furnished under these specifications, shall be tested, as specified or otherwise required, in conformity with the best modern approved methods for the particular type and class of work.

b. Unless waived in writing by the contracting officer, all tests and trials shall be made in the presence of an appointed inspector. When the presence of the inspector is so waived, sworn statements, in duplicate, of the tests made and the results thereof, shall be furnished to the contracting officer by the contractor.

c. The costs of all shop tests and trials shall be borne by the contractor and shall be included in the contract unit price.

d. All materials, parts, and equipment shall be of the highest grade, free from defects and imperfections, of recent manufacture, and unused. Workmanship shall be of the highest grade and in accordance with the best modern standard practice.

1-15. Standard stock articles. - All materials, supplies, and articles furnished shall, wherever so specified, and otherwise wherever practicable, be the standard stock products of recognized reputable manufacturers. The standard stock products of manufacturers other than those specified herein will be accepted when it is proved to the satisfaction of the contracting officer that they are equal in strength, durability, usefulness, and convenience for the purpose intended.

1-16. Protection of stored materials. - All materials, supplies, and articles stored at the contractor's plant shall be adequately housed by the contractor or otherwise protected by him against deterioration and damage.

1-17. Service of erecting engineer. - a. The installation of the equipment is not included in this contract, but will be done by other agencies. However, the contractor shall furnish promptly upon written notice by the contracting officer, the services of a competent erecting engineer to supervise and direct the erection and installation of this

equipment. The services of the erecting engineer will be paid for by the Government at an allowance of twenty-five dollars (\$25.00), per calendar day from the time of departure from, to the time of return to, his home station; such allowance to cover salary, travel, and living expenses of the erecting engineer and any other costs occasioned by the furnishing of the service. No payment will be made for services of the erecting engineer in connection with alterations to any of the equipment occasioned by failure of such equipment to comply with the requirements of the specifications.

b. The erection and installation of the equipment by other agencies under the direction and supervision of the contractor's erecting engineer shall in no way relieve the contractor of sole responsibility for the equipment meeting all the requirements of those specifications and fulfilling all the contractor's guaranties.

1-18. Claims, protests and appeals. - a. If the contractor considers any work demanded of him to be outside the requirements of the contract or if he considers any action or ruling of the contracting officer or of the inspectors to be unfair, the contractor shall without undue delay, upon such demand, action, or ruling, submit his protest thereto in writing to the contracting officer, stating clearly and in detail the basis of his objections. The contracting officer shall thereupon promptly investigate the complaint and furnish the contractor his decision, in writing, thereon. If the contractor is not satisfied with the decision of the contracting officer, he may, within thirty days, appeal in writing to the Chief of Engineers, whose decision shall be final and binding upon the parties to the contract. Except for such protests or objections as are made of record in the manner herein specified and within the time limit stated, the records, rulings, instructions or decisions of the contracting officer shall be final and conclusive.

b. The Chief of Engineers has been designated by the Secretary of War as his duly authorized representative to make final decision and to take other action where the terms of the contract require that such decision or action shall be "by the Head of the Department concerned or his duly authorized representative." All appeals from decisions of the contracting officer authorized under the contract shall, therefore, be addressed to the Chief of Engineers, U. S. Army, Washington, D. C. The appeal shall contain all the facts or circumstances upon which the contractor bases his claim for relief and shall be presented to the contracting officer for transmittal within the time provided therefore in the contract.

1-19. Minor modifications. - The right is reserved to make such minor changes in the execution of the work to be done under these specifications as, in the judgment of the contracting officer, may be necessary or expedient to carry out the intent of the contract, provided that the unit cost to the contractor of doing the work shall not be increased thereby; and no increase in unit price over the contract rate will be paid to the contractor on account of such changes.

1-20. Patents. - The contractor shall hold and save the Government, its officers, agents, servants, and employees, harmless from liability of any nature or kind, including costs and expenses, for or on account of any patented or unpatented invention, articles or appliance manufactured or used in the performance of this contract, including their use by the Government.

1-21. Federal, State, County, and Municipal taxes. - a. Contract prices herein include any Federal tax heretofore imposed by the Congress which is applicable to the material on this contract. If any sales tax, processing tax, adjustment charge, or other taxes or charges are imposed or changed by the Congress after the date set for the opening of bids and made applicable directly upon the production, manufacture or sale of the supplies covered by this contract and are paid to the Government by the contractor on the articles or supplies herein contracted for, then the prices named in this contract will be increased or decreased accordingly, and any amount due the contractor as a result of such change will be charged to the Government and entered on vouchers (or invoices) as separate items.

b. The contract prices herein do not include any Federal taxes from which exemption is granted or as to which a credit or refund is provided for under the provisions of section 401 of the Revenue Act of 1935 (Act of August 30, 1935; 49 Stat. 1014; 1025-1026), as amended, nor any tax imposed by a State, County, or Municipality upon the transaction of this procurement of these materials.

1-22. Representations and stipulations pursuant to Public Act No. 846 - 74th Congress. - a. The contractor is the manufacturer of or a regular dealer in the materials, supplies, articles, or equipment to be manufactured or used in the performance of the contract.

b. All persons employed by the contractor in the manufacture or furnishing of the materials, supplies, articles, or equipment used in the performance of the contract will be paid, without subsequent deduction or rebate on any account, not less than the minimum wages as determined by the Secretary of Labor to be the prevailing minimum wages for persons employed on similar work or in the particular or similar industries or groups of industries currently operating in the locality in which the materials, supplies, articles, or equipment are to be manufactured or furnished under the contract: Provided, that this stipulation with respect to minimum wages shall apply only to purchases or contracts relating to such industries as have been the subject matter of a determination by the Secretary of Labor.

c. No person employed by the contractor in the manufacture or furnishing of the materials, supplies, articles, or equipment used in the performance of the contract shall be permitted to work in excess of eight hours in any one day or in excess of forty hours in any one week, unless such person is paid such applicable overtime rate as has been set by the Secretary of Labor.

d. No male person under sixteen years of age and no female person under eighteen years of age and no convict labor will be employed by the contractor in the manufacture or production or furnishing of any of the materials, supplies, articles, or equipment included in the contract.

e. No part of the contract will be performed nor will any of the materials, supplies, articles, or equipment to be manufactured or furnished under said contract be manufactured or fabricated in any plants, factories, buildings, or surroundings or under working conditions which are unsanitary or hazardous or dangerous to the health and safety of employees engaged in the performance of the contract. Compliance with the safety, sanitary, and factory inspection laws of the State in which the work or part thereof is to be performed shall be prima facie evidence of compliance with the subsection.

f. Any breach or violation of any of the foregoing representations and stipulations shall render the party responsible therefor liable to the United States of America for liquidated damages, in addition to damages for any other breach of the contract, in the sum of ten dollars (\$10.00) per day for each male person under sixteen years of age or each female person under eighteen years of age, or each convict laborer knowingly employed in the performance of the contract, and a sum equal to the amount of any deductions, rebates, refunds, or underpayment of wages due to any employee engaged in the performance of the contract; and, in addition, the agency of the United States entering into the contract shall have the right to cancel same and to make open market purchases or enter into other contracts for the completion of the original contract, charging any additional cost to the original contractor. Any sums of money due to the United States of America by reason of any violation of any of the representations and stipulations of the contract as set forth herein may be withheld from any amounts due on the contract or may be recovered in a suit brought in the name of the United States of America by the Attorney General thereof. All sums withheld or recovered as deductions, rebates, refunds, or underpayments of wages shall be held in a special deposit account and shall be paid, on order of the Secretary of Labor, directly to the employees who have been paid less than minimum rates of pay as set forth in such contracts and on whose account such sums were withheld or recovered; Provided, that no claims by employees for such payments shall be entertained unless made within one year from date of actual notice to the contractor of the withholding or recovery of such sums by the United States of America.

g. The contractor shall post a copy of the stipulations in a prominent and readily accessible place at the site of the contract work and shall keep such employment records as are required in the Regulations under the Act available for inspection by authorized representatives of the Secretary of Labor.

h. The foregoing stipulations shall be deemed inoperative if this contract is for a definite amount not in excess of ten thousand dollars (\$10,000).

1-23. Schedule of minimum wage rates applicable to this contract under subparagraph 1-22 b above. - No determination of minimum rates applicable to this contract has been made by the Secretary of Labor. Subparagraph b of the stipulations contained in Paragraph 1-22 above, is therefore, inoperative to this contract.

1-24. Employees affected. - The stipulations set forth in Paragraph 1-22 above shall be deemed applicable only to employees engaged in or connected with the manufacture, fabrication, assembling, handling, supervision, or shipment of materials, supplies, articles, or equipment required under the contract and shall not be deemed applicable to office or custodial employees.

1-25. Overtime. - The rate of pay for overtime under subparagraph c of the stipulations, set forth in Paragraph 1-22 above, shall be one and one-half (1-1/2) times the basic hourly rate or piece rate received by the employee. If in any one week or part thereof an employee is engaged in work covered by the contractor's stipulation, his overtime shall be computed after eight hours in any one day or after forty hours in any one week during which no single daily total of employment may be in excess of eight hours without payment of the overtime rate.

1-26. Records of employment. - Pursuant to the Act referred to in Paragraph 1-22 above, and the regulations adopted pursuant thereto, the contractor shall maintain the following records of employment which shall be available for the inspection and transcription of authorized representatives of the Secretary of Labor:

a. Name, address, sex, and occupation of each employee covered by the contract stipulations.

b. Date of birth of each such employee under twenty-one years of age.

c. Wage and hour records for each such employee including the rate of wages and the amount paid each pay period, the hours worked each day and each week and the period during which each such employee was engaged on a Government contract, with the number of such contract. Compliance with this subsection shall be deemed complete if wage and hour records of all employees in the plant are maintained during the period between the award of any Government contract and the date of delivery of the materials, supplies, articles, or equipment; Provided, that where no separate records for employees engaged on Government contracts are maintained, it shall be presumed, until affirmative proof is presented to the contrary, that all employees in the plant from the date

of award of any such contract until the date of delivery of the materials, supplies, articles, or equipment were engaged on such Government contract. Such records shall be kept on file for at least one year after the termination of the contract.

1-27. Interpretation of specifications. - On all questions relating to the acceptability of material, machinery, classification of materials, the proper execution of the work, and the interpretation of the specifications, the decision of the contracting officer shall be final, subject to appeal as provided for in Article 12 of the contract.

1-28. Final acceptance and payment. - When all the work called for under this contract has been completed, the contracting officer will make a thorough examination of same, and if it is found to comply fully with the requirements of the contract, it will be accepted and final payment will be made.

1-29. Approval. - The contract shall be subject to the written approval of the Division Engineer, North Atlantic Division, and will not be binding until so approved.

- - - - -

SECTION II. 30-INCH PUMPS (Item 1-a).

2-01. Work included. - a. The contractor shall design, manufacture and deliver three 30-inch vertical propeller type pumps complete with couplings, discharge piping, valves, and accessories necessary to make a complete installation. The pumps will be used for pumping surface runoff and diluted sewage during periods of high river stages, for protracted periods.

b. Each pump shall be connected through a right angle gear unit to a gasoline engine of suitable power. The pumps will be installed as shown on the drawings by other agencies.

2-02. Operating conditions. - The pumps shall be capable of satisfactory operation and shall meet all the requirements of the specifications under the following conditions:

<u>El. bottom of sump</u>	<u>El. engine room floor</u>	<u>Min. sump water el.</u>	<u>Max. sump water el.</u>
42.0	62.0	47.0	58.0

2-03. Pump characteristics. - a. General. - The pumps shall be the vertical, open propeller, single stage submerged type designed to handle storm water and diluted sewage. All parts shall be of such design, strength, and proportions as to perform in a successful manner the work required. The pumps shall operate smoothly and quietly without excessive vibration or cavitation, throughout the range of head specified. The pumps shall be designed to start and run dry without injury.

b. Capacity. - Each pump shall deliver not less than 19,000 g.p.m. at a total head of 23.5 feet and not less than 22,000 g.p.m. at a total head of 14 feet. The characteristics of the pump shall be such that the power required to operate it between the above limits of head shall not exceed the horsepower of the engine as specified in Paragraph 3-03. The rotative speed of the pump shall not exceed 600 r.p.m.

2-04. Pump bowl. - The bowl of each pump shall be made either of close-grained cast iron or fabricated sheet steel having the same composition as that stated in Paragraph 2-02. The minimum wall thickness, if of cast iron, shall be 1.25 inches, and if of sheet steel, .50 inch. Suitable eye-bolts or lugs shall be provided to facilitate handling of the bowl.

2-05. Diffusion vanes. - Diffusion vanes shall be provided to guide the water into the discharge column. The hub of the diffusion vanes shall form the support for the propeller guide bearings as well as the lower end of the shaft cover pipe.

2-06. Propeller. - The propeller shall be cast in one piece of acid-resisting bronze free from imperfections and having a tensile strength of not less than 40,000 pounds per square inch. The material shall conform to the provisions of Federal Specification QQ-B-691a for "Bronze Castings," Composition 5. The propeller shall be securely locked to the shaft in such a manner as to prevent damage in case the direction of rotation should become reversed. The propeller shall be finished all over to a smooth surface and to correct shape and contour, and shall be dynamically and statically balanced to avoid vibration.

2-07. Discharge column. - The discharge column shall be made of cast iron or of steel having corrosion resisting qualities equal to that possessed by steel of the following analysis:

Carbon	Max. 0.10%
Manganese	0.10 to .30%
Phosphorus	0.10 to .20%
Sulphur	0.05% maximum
Silicon	0.50 to 1.00%
Copper	0.30 to 0.50%
Chromium	0.50 to 1.50%
Yield Point	- Not less than 50,000 lbs. per sq. in.
Tensile Strength	- Not less than 65,000 lbs. per sq. in.

If made of steel, it shall be not less than 3/8-inch thick. If made of cast iron, it shall be of a thickness not less than that of the corresponding size Class "B" cast iron pipe of the American Water Works Association. The discharge column shall be designed for suspension from the base plate, and shall be so proportioned as to support safely the bowl and suction bell, and to withstand the hydraulic pressure, thrust, and any other load to which it may be subjected during transportation, erection, or operation. The column shall be made of sections not more than 10 feet in length. A pipe sleeve shall be provided to form an enclosure to protect the shaft, couplings, and intermediate bearings from direct contact with the discharge effluent. Where this sleeve emerges above the base plate, provision shall be made for packing the drive shaft so that floor drainage or dirt will be excluded from the pipe sleeve and intermediate bearings. Should the vertical section of the discharge pipe be continued to the base plate, adequate and approved provisions shall be made to prevent water leakage at the base plate. Hand holes of liberal proportions shall be provided so as to permit ready access to any valves or similar obstruction in the discharge column and elbow. All covers shall match the interior contour of the adjoining surfaces.

2-08. Shafting. - The pump shafts shall be constructed of corrosion resisting metal conforming to the requirements of Federal Specifications QQ-S-763 for Steel, corrosion resisting; Bars and Forgings, Grade 7, or Copper Nickel Alloy conforming to requirements of Federal Specifications QQ-C-541 for Copper, Nickel Alloy; Bars, Plates, Rods, Shapes, Sheets, Strips, Tubing (seamless), and Wire, Type I, Class "C", or shall be of cold rolled steel sleeved with material specified above at the lower

section where the pump shafts turn in the lower bearings. Intermediate shafts shall be constructed of cold rolled steel. The shafts shall be of sufficient diameter to transmit the torque with a factor of safety of not less than eight (8) based on the ultimate strength of the material. The shafts shall be furnished in not more than two sections, and the separate sections shall be connected by means of an approved shaft coupling. In the design and arrangement of the shaft assembly provision shall be made for making any necessary vertical adjustments to the shaft after it has been assembled in the pump unit and without interfering with its alignment.

2-09. Bearings. - The bearings supporting the shaft between the pump and gear unit shall be of high-grade bronze, and of the removable sleeve type. The number and spacing of bearings shall be clearly indicated on the contractor's drawings. The weight of the propeller, the pump shaft and intermediate shaft, and their couplings, in addition to the thrust imposed by the pump, shall be carried independently by a roller or ball thrust bearing incorporated in the gear unit. The guide bearings shall be of ample dimensions to withstand any load that will be imposed on them in the operation of the pumps, even should the rotation of the shaft become reversed. They shall be capable of operating continuously without objectionable rise in temperature under all variations of the load and shall be enclosed in sectional sleeves, fully protected from coming into direct contact with the water. All guide bearings except the lower pump bearing shall be oil lubricated by means of automatic mechanical type lubricators which will feed lubricant to bearings only during actual operation and shall be provided with sight feed. The lower bearing shall be grease lubricated and shall be serviced through an alomite or Zerk fitting for forced lubrication. All lubricators and pressure fittings shall be brought to a position above the operating room floor where they can be conveniently serviced.

2-10. Base plates. - Gear unit base plates shall be cast iron or fabricated from structural and plate steel. They shall be sturdily built, constructed to support the entire weight of the gear unit, pump and column pipe, plus the maximum hydraulic thrust, and of sufficient size to span the opening shown on the drawings.

2-11. Cover pipe. - The cover pipe for the shaft shall be of extra heavy wrought iron, shall be sectionalized, and shall be adequate to support rigidly the intermediate shaft bearings. Provisions shall be made to prevent water from working up the cover pipe and eventually out of the oil cups.

2-12. Suction bell. - Each pump shall be equipped with a cast iron or fabricated steel bell mouth to guide the water to the propeller. It shall be flanged at the top and bolted to the pump bowl flange and shall be properly designed to prevent vortex and to reduce entrance losses to a minimum. Each bell shall be provided with lifting studs to permit easy removal.

2-13. Discharge piping. - a. The discharge piping from the pump discharge to the flap valve shall be Class "A" American Water Works Association standard cast iron flanged pipe or the equivalent pipe fabricated from steel as described in Paragraph 2-07, with flanges faced and drilled to the 125-pound American Standard. All flanged connections shall be bolted together with U. S. Standard machine bolts having square heads and hexagonal nuts. The flexible couplings shall be "Dresser" style 38 steel coupling or equal.

b. At the point where the discharge pipe passes through the sump wall, a wall pipe section shall be provided with an intermediate flange cast or welded on the pipe to come in the center of the wall. The intermediate flange shall be of the same diameter and thickness as the standard pipe flange.

2-14. Gate valves. - a. The gate valves to be installed in the discharge line shall be iron body, brass trimmed, non-rising stem, solid wedge type valves equal to Crane No. 491 or Chapman No. 35. The valves shall be rated at 43 pounds per square inch cold water working pressure. All valves shall be drilled in accordance with the 125-pound American Standard. Each gate valve shall be equipped with a non-rising stem floor-stand similar and equal to Chapman No. BNR. A position indicator shall be furnished on each floor-stand.

2-15. Flap valves. - The flap valves shall be flanged frame "Chapman" Table No. 25 or equal with bronze rings in both frame and flap and bronze hinge pins. The body and flap shall be suitable for 43 pounds per square inch working pressure. Flanges shall be faced and drilled in accordance with the 125-pound American Standard.

2-16. Accessories. - The pumps shall be provided with a complete set of wrenches and special tools mounted in an approved metal case; and four complete sets of instruction bulletins.

2-17. Shop tests. - a. Capacity and efficiency tests shall be made on one pump at the manufacturer's plant if feasible, and if not, a model test shall be made to insure compliance with these specifications. Readings shall be taken at not less than 5 points at uniform intervals to obtain curves of capacity, efficiency and horsepower over the complete range of heads specified. Certified tests on duplicate pumps may, subject to approval by the contracting officer, be accepted in lieu of capacity tests. If a model is used for the test, the model shall be exactly homologous in all respects with a propeller at least 12 inches in diameter, and it shall be tested at the same specific speed as the prototype. Tests shall be witnessed by a representative of the contracting officer. The results of the tests shall be prepared in typewritten form with characteristic curves.

b. The cost of all labor, material, equipment, and other facilities necessary for conducting the shop tests shall be borne by the contractor.

2-18. Field tests. - After installation, each pump will be tested for a sufficient period of time to insure that it is in satisfactory operating condition. Any adjustments required to secure satisfactory operation shall be made by and at the expense of the contractor.

2-19. Painting. - a. General. - All items of equipment shall be painted in the shop in the most thorough manner to prevent corrosion. Surfaces of metal parts to be painted shall be entirely cleaned of all scale, rust, dirt, oil or other foreign substances, by scrapers, wire brushes, sand blast, mineral spirits or other approved cleaning agents not less than 30 minutes nor more than 5 hours prior to the application of any paint. All painting shall be done either by brush or spray in a neat, thorough and workmanlike manner. All surfaces shall be warm and dry before applying any paint.

b. Equipment located on or above the engine-room floor. - All exterior parts of the equipment located on or above the engine-room floor shall be cleaned and prepared for painting in accordance with the requirements of Paragraph 2-19 a. The priming coat of paint shall be applied in accordance with the manufacturer's standard practice. Prior to shipment the equipment shall be given two coats of machinery enamel, similar and equal to "Lustral" as manufactured by the Sherwin-Williams Company. The color shall be as selected by the contracting officer.

c. Equipment below engine-room floor. - All exterior surfaces of the equipment that is to be installed below the engine-room floor and the interior surfaces of the column and discharge piping shall be prepared for painting as required in Paragraph 2-19 a, and shall be given one coat of an approved asphaltic primer conforming to the requirements of Federal Specification SS-A-701, and one coat of asphalt varnish. The asphalt varnish shall be similar and equal to "Anchor" asphalt paint manufactured by the Barrett Company of New York, and shall meet the requirements of Federal Specification TT-V-51, Type B, for Asphalt Varnish.

d. Protection of surfaces not painted. - Shafts and surfaces finished for working contact shall not be painted but shall be protected with a coat of white lead and tallow or other approved slushing compound.

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SECTION III. GASOLINE ENGINES (Item 1-b).

3-01. Work included. - The contractor shall furnish in accordance with the drawings and specifications three gasoline engines suitable for driving the 30-inch pumps through right angle gear reduction units. The engines shall be furnished complete with silencers, exhaust piping, connections to exhaust, water and fuel lines, and flexible couplings to the gear reduction units.

3-02. General description. - a. Each engine shall be a four-cycle, internal-combustion, heavy-duty, stationary type having not less than 6 cylinders. Each engine shall be of late design and a current model, standard with the manufacturer and shall be the product of a reliable manufacturer who can show at least 5 years' experience in the manufacture of engines of the type specified and for similar duty.

b. Each engine shall be equipped with two starting motors and storage battery for self-starting and all incidental ignition equipment, miscellaneous wrenches for special nuts and a suitable detachable hand crank, and complete operating equipment.

3-03. Design. - a. Each engine shall operate at a governed speed not exceeding 1200 r.p.m. when driving the pump at its rated speed as defined in Paragraph 2-03 b. At this speed the rating of the engine shall be such that when driving the gear unit and pump at the 14-foot total head condition, the horsepower required shall not be more than 80 percent of that which the engine is capable of delivering with auxiliaries attached and with fuel as specified in Paragraph 3-08 a(3), as shown by a published test curve. Also, when driving the gear unit and pump at the 23.5-foot total head condition, the horsepower shown on the above curve shall not be exceeded.

b. The design of the engine shall be such that, when delivering its maximum horsepower at governed speed, the stresses set up in the several parts shall not exceed safe working stresses for the material used, and shall conform to the best modern practice in the design of high-grade machinery. The design shall insure that no torsional critical speed exists within the operating speed range.

c. The detailed design of the engines shall be such that all working parts shall be readily accessible for inspection and repair, easily duplicated, and readily replaced with each part of the equipment properly designed and suitable for the use and service required.

3-04. Construction details. - a. The principal parts of the engine shall be as follows:

(1) The crankcase shall be of the pedestal base type with large removable side plates.

(2) The crank shaft shall be made of one piece, heat-treated alloy steel forging substantially designed to withstand severe operating conditions. It shall be dynamically and statically balanced and all journals shall be ground and polished. The crank shaft shall be drilled for pressure feed lubrication.

(3) The flexible coupling shall be of an approved type and shall be provided with a suitable guard. The coupling shall be suitable for transmitting 300 percent of the normal operating torque of the engine and shall be similar and equal to Falk Steelflex Coupling.

(4) The main bearings shall be of a readily removable sleeve type and shall be accurately fitted and anchored against side thrust. Bearings shall be bronze-backed and babbitt-lined. Oil, under pressure, shall be suitably admitted to the inside of each main bearing shell.

(5) The valves shall be of a special heat resisting steel, of large area, accurately fitted and ground to fit the valve seats. The valve seats shall be removable and of special steel, heat-treated.

(6) Cylinders. - The cylinder block shall be separate from the crankcase, and shall be cast in one piece or in pairs of cylinders. Cylinders and heads shall be fully waterjacketed.

(7) Camshaft. - The camshaft shall be of forged alloy heat-treated steel, with integral cams. The cam faces and bearing surfaces shall be carburized, hardened and ground finished to size.

(8) Pistons. - Pistons may be of light-weight cast iron, or alloy, and of such construction as to provide uniform expansion of the piston skirt. Each piston shall be equipped with at least four rings, three above the piston-pin and one below. The piston pin shall be of tubular hardened steel, accurately ground and securely locked in place.

(9) Push rods and guides. - Push rods shall be of hardened steel and accurately ground. The push rod guides shall be bronze and of the removable type.

(10) Flywheel. - The flywheel shall be of gray iron or steel, statically and dynamically balanced. It shall be securely attached to the crankshaft ahead of the flexible coupling.

(11) A positive displacement gear driven pump shall supply oil under pressure to all bearings, valve operating mechanism, piston pins, and timing gears. The pump shall be accessible and removable without dismantling the engine. An oil pressure gauge shall be installed on the control board (see Paragraph 3-05). A suitable,

high grade oil filter with safety by-pass valves and an oil cooler shall be provided and installed on the engine. A hand pump shall be provided to force oil through the system prior to starting engine.

(12) The carburetors shall be of the heavy duty type equipped with chokes, gasoline filters, air filters, and flame arresters. Each engine shall be equipped with two engine-driven diaphragm type pumps for pumping the gasoline from the tanks to the engine. Each engine shall be provided with a hand operated fuel pump equipped with a spring loaded by-pass valve set to unload at 4 pounds per square inch. Connections to the gasoline lines shall be made with flexible seamless bronze hose with woven wire protection and packless couplings. The storage tanks and piping will be furnished and installed by others. The carburetors and gasoline piping shall conform to the requirements of the Underwriters Laboratories.

(13) Ignition and starting system. - (a) A 12-volt battery-type dual ignition system shall be provided, with two independently driven distributors, two heavy-duty ignition coils, and two spark plugs in each cylinder, fired simultaneously. The starting push button switch of each engine shall be so designed that the current from one engine battery will not flow to aid the battery of another engine when the starting motor on that engine is operated. A single-pole switch shall be provided to take the battery off the charging unit.

(b) Two 12-volt, heavy-duty electric cranking motors shall be provided for starting each engine. Each cranking motor shall be controlled by a 12-volt magnetic switch, the two switches being actuated simultaneously by a push-button switch on the engine panelboard. The cranking motors shall be capable of cranking the engine at sufficient speed to insure starting when the engine is connected to the pump through the gear-reduction unit, with the pump casing full of water, and with a 32 degree F. ambient engine room temperature (see subparagraph (c) below). Suitable provision shall be made to prevent operation of the engine cranking motors except when the spark control lever is in full-retard position.

(c) A 12-volt storage battery shall be provided. The battery shall have sufficient capacity to provide a 3-minute continuous cranking of the complete unit under operating conditions with an ambient engine room temperature of 32 degrees F.

The battery shall have special plate construction for severe or unusual conditions. Each positive plate shall be composed of multiple insulated containers filled with active materials, the containers to run vertically, horizontally or diagonally, permitting free passage of electrolyte from one face of the plate to the other; each container shall be slotted or perforated to permit diffusion of the acid electrolyte into the containers.

The electrolyte shall be of the low-gravity type with a specific gravity of 1.200 to 1.220.

The battery shall conform to the specifications for United States Government award by the Treasury Department, Procurement Division, Branch of Supply for lead-acid storage batteries, Class 17, Item B8630.

A suitable shelf or platform with an acid proof rubber or lead tray shall be provided on or located adjacent to the engine base for mounting the battery.

(14) Governor. - (a). A governor shall be mounted directly on the engine and arranged for force-feed lubrication. It shall be of the non-hunting, precision type, capable of maintaining the engine speed within 5 percent of rated speed during part-load changes from full-load to no-load.

(b). The engine shall be provided with an automatic ignition cut-out switch that will shut the engine down when the engine speed exceeds that normally controlled by the governor. The cut-out switch shall be adjustable and provided with manual reset.

(15) The exhaust manifold shall be a close grained gray iron casting, waterjacketed for its entire length and provided with suitable flange connections having a straight pipe thread for exhaust pipe. A water-cooled bronze flexible exhaust shall be provided as shown on the drawings and shall be similar and equal to that manufactured by the Packless Metal Products of Long Island City, New York.

(16) An exhaust silencer for each engine shall be provided for mounting on the roof as shown on the drawings. The silencer shall be similar and equal to the Model MU-2 manufactured by the Maxim Silencer Company, or the equivalent silencer manufactured by the Burgess Battery Company.

(17) A rain hood for each exhaust silencer shall be provided as indicated on the drawings. The rain hoods shall be made of 16-gauge, galvanized sheet iron in accordance with Federal Specification QQ-I-696. Insulating sleeves shall be provided in the concrete as shown on the drawings.

(18) The cooling system for the engines shall be the open type with water obtained from the city water system. A temperature regulated valve shall be installed in the cooling water intake to regulate the flow of cooling water through the engine. The regulator shall be equal to that manufactured by the Fulton Syphon Company. There shall be provided a pressure temperature-operated switch so arranged that it will open the ignition circuit in the event the oil pressure is not adequate for safe operation of the engine or in the event the cooling water temperature exceeds that at which the switch is set to operate.

b. Other details of the engine not specifically mentioned, shall conform to the requirements of approved standard practice applying to the part and the service intended (see Paragraph 1-12).

3-05. Miscellaneous equipment. - a. Instrument panel. - A polished metal panelboard shall be installed on each engine and the following instruments and equipment mounted thereon.

- One tachometer
- One main oil line pressure gauge
- One lubricating oil filter outlet gauge
- Cranking motor-push-button switch
- Ignition switch
- Disconnect switch for battery charging circuit
- Temperature gauges

b. Tools. - One set of special wrenches or tools shall be provided and mounted in a suitable cabinet.

3-06. Drawings. - Before purchasing the engines, the contractor shall furnish drawings and specifications for the proposed engines for approval. The drawings shall give all principal dimensions of the engine and all accessories, and dimensions of concrete base for mounting. Accessories shall be listed on the drawings by catalog number with name of manufacturer; and shall be accompanied by cuts and the manufacturer's specification for the accessories, all properly numbered to agree with the list as shown on the drawings (see Paragraph 1-03).

3-07. Shop assembly. - All work shall be neatly and accurately done and shall be in accordance with the highest standards of practice for equipment of the type to be furnished. The engine shall be accurately aligned on the bed-plate and securely attached thereto. Provisions shall be made for lifting the engine by a crane.

3-08. Inspection and tests. - a. Each engine unit will be inspected and tested in the shop by an authorized representative of the contracting officer. A typewritten record of the tests, including observations, calculations, results, and graphs, shall be submitted to the contracting officer by the manufacturer, together with a sworn statement from the person supervising the tests. The engine shall be tested for satisfactory operation under the following conditions:

(1) The engine shall be run continuously for twenty-four (24) hours at full-load, which shall be equal to the continuous horsepower rating required by Paragraph 3-03 a, followed by a one-hour run at the overload required by the pump at the maximum head condition.

(2) The valve setting and governor control shall be checked by means of a tachograph, with the entire unit operating under various loading conditions ranging from no-load to the maximum load of the pump rating.

(3) All tests shall be made using commercial standard gasoline fuel conforming to Federal Specification VV-G-101a and having an octane rating of 65 - 70.

(4) Immediately after running tests for the engine the contracting officer or his representative may require that the engine be opened for inspection.

b. Field tests and trials shall be made after installation under the supervision of and as directed by the contracting officer. They shall be of sufficient loading and duration to demonstrate to the satisfaction of the contracting officer that the complete unit as installed is in conformity with the specifications. Any alterations necessary to bring the engines up to the requirements of the specifications shall be made by and at the expense of the contractor.

c. The cost of all testing shall be borne by the contractor, except for the Government's representatives, and shall be included in the contractor's bid price for the item.

3-09. Painting. - Shop painting shall be in accordance with the provisions in Paragraph 2-19 b. Such retouching as may appear necessary in the opinion of the contracting officer shall be done with the same shade of paint as the shop coat. All finished surfaces to be exposed to the atmosphere during shipment shall be coated with a heavy rust preventive compound.

SECTION IV. RIGHT ANGLE GEAR UNITS (Item 1-c).

4-01. Work included. - The contractor shall furnish three right-angle gear units for continuous transmission of the power from the horizontal gasoline engines to the vertical pump shafts of the 30-inch pumps. Each unit shall be ready for connection to its respective engine and pump.

4-02. Type and rating. - The gear unit shall be the self-contained type designed for transmitting power from the horizontal engine shaft through spiral bevel gears. The horsepower rating shall be in accordance with the recommended practice of the American Gear Manufacturers' Association, and the unit shall have a service factor of not less than 1.25 times the power required to drive the pump under any head from zero to 23.5 feet. The gear unit shall be a standard unit that is regularly manufactured for service similar to that required by these specifications.

4-03. Housing. - The housing of the gear unit shall be of rigid, compact design, with a base made of close-grained cast iron. The cover of the housing shall be of close-grained cast iron, or fabricated steel plate. The design of the housing shall be such that all bearings are supported in the base section, and the cover may be removed without disturbing the bearings, gears or oil piping. All joints shall be machined, oil tight, and dust proof. Suitable cover-plates shall be provided that will permit easy access to the interior for examination and adjustment of the parts.

4-04. Gears. - The spiral bevel gears shall be of the precision generated, curved tooth type, made of alloy steel and heat-treated and lapped. The gears shall be designed to give the proper ratio and transmit the power without undue strain. Gears and pinions shall be supported between bearings, and so mounted that they will be in precise alignment at all times.

4-05. Shafts. - The shafts shall be made of forged, heat-treated steel and shall be of ample size to provide against deflection. The shafts shall be supported in anti-friction bearings of the radial thrust type. A thrust bearing of ball or roller type shall be incorporated which will support the weight of the rotating parts and the hydraulic thrust of the pump. The bearings shall be of ample size and rating for the duty required of them. Provision shall be made to provide vertical adjustment for the pump shaft (see Paragraph 2-08). The slow speed vertical shaft shall be of hollow shaft design connected at the top through a clamp coupling to the vertical pump shaft. The coupling shall be provided with suitable shear pins designed to allow engine and gears to run free in case the pump should clog.

4-06. Lubrication. - A lubricating system shall be furnished providing a continuous flow of oil to all bearings, and spray lubrication at point of engagement of the gears. The lubrication system shall be

capable of supplying sufficient oil to lubricate all parts when the unit is running at a speed corresponding to approximately one-half of the rated speed of the engine. The oil system including all oil piping shall be self-contained within the gear unit, with adequate oil supply carried in the base of the gear housing. The circulating oil pump shall be self-priming, so located that inspection can be made without disconnecting oil piping. An oil level indicator and an oil flow indicator shall be provided. The unit shall be self-cooling without the use of cooling water and when operating continuously under rated load the temperature of the lubricating oil shall not exceed 160 degrees F. at an ambient of 70 degrees F. Oil seals shall be provided at the shaft outlet but no stuffing box or glands shall be used.

4-07. Field tests. - After installation, each unit will be operated and tested for a sufficient period of time to demonstrate that it is in satisfactory operating condition and meets the requirements of these specifications. Any alterations necessary to bring the gear units up to the requirements of the specifications shall be made by and at the expense of the contractor.

4-08. Painting. - Painting shall be in accordance with the provisions in Paragraph 2-19 b. Such retouching as may appear necessary in the opinion of the contracting officer shall be done with the same shade of paint as the shop coat. All finished surfaces to be exposed to the atmosphere during shipment shall be coated with a heavy rust preventive compound.

United States Engineer Office
Providence, Rhode Island

June 21, 1940

STANDARD GOVERNMENT FORM OF BID
(Supply Contract)

Opening Date for This Bid
July 25, 1940

The District Engineer
U. S. Engineer Office
819 Industrial Trust Bldg.
Providence, Rhode Island

(Place) _____

(Date) _____

In compliance with your invitation for bids dated June 21, 1940,
to furnish materials and supplies listed on the accompanying schedules,
the undersigned, _____,
a corporation organized and existing under the laws of the State of _____
an individual trading as _____

_____ of the City of _____, hereby proposes
to furnish, within the time specified, the materials and supplies at
the prices stated opposite the respective items listed on the schedules
and agrees, upon receipt of written notice of the acceptance of this
bid within 60 days after the opening of the bids, to execute, if re-
quired, the Standard Government Form of Contract (Standard Form No. 32,
Revised) in accordance with the bid as accepted, and to give bond, if
required, with good and sufficient surety or sureties, for the faithful
performance of the contract, within 10 days after the prescribed forms
are presented for signature.

Discount will be allowed for prompt payment as follows:

10 calendar days _____ percent; 20 calendar days _____ percent;
30 calendar days _____ percent; or as stated in the schedules.

(Time will be computed from the date of delivery of the supplies to carrier when final inspection and acceptance are at point of origin, or from date of delivery at destination or port of embarkation when final inspection and acceptance are at those points, or from date correct bill or voucher properly certified by the contractor is received, if the latter date is later than the date of delivery.)

SCHEDULE

Item: No.:	Articles	: Quantity :	Unit :	Unit Price :	Amount
1-a :	30-Inch Pumps	3	Each	:	\$ _____
1-b :	Gasoline Engines	3	"	:	\$ _____
1-c :	Right-Angle Gear Units	3	"	:	\$ _____
:	Total Item 1	:	:	:	\$ _____

Prices quoted are based on delivery f.o.b. cars at Chicopee, Massachusetts.

NOTE:- The amounts stated above will be subject to verification by the Government. In case of variation between unit bid price and amounts stated by bidder, the unit prices will be considered to be his bid.

Domestic Material: It is hereby warranted that, in the event award is made to the undersigned, the unmanufactured articles, materials or supplies furnished the Government will have been mined or produced in the United States, and the manufactured articles, materials and supplies will have been manufactured in the United States all from articles, materials or supplies mined, produced or manufactured, as the case may be, in the United States, except as noted below or otherwise indicated in this bid.

Exceptions _____
(If none, so state)

Manufacturer _____

Regular dealer _____

(Full name of bidder)

(Address)

NOTE:- See Government Instructions to Bidders and copy of the Standard Government Form of Contract, Bid Bond and Performance Bond which may be obtained upon application.

D A T A S H E E T S

The bidder shall submit with his proposal the following information regarding the equipment he proposes to furnish. Statements so made by the bidder are intended to be, and are, express warranties.

DATA SHEET

30-INCH PUMPS

Manufacturer's name _____

Model _____ Type _____

Guaranteed capacity at 14.0-foot total head _____ g.p.m.

Speed in R.P.M. _____

Maximum horsepower required at 14-foot head _____; at 23.5
foot head _____

Diameter of shaft in inches _____

Suction bell material _____

Weight of complete pump assembly _____ lbs.

Weight of heaviest piece _____ lbs.

Will test be made on model or full-size pump _____

If on model state size and conversion factor to be used for com-
puting efficiency _____

DATA SHEET

GASOLINE ENGINES

Manufacturer's name _____

Model or type _____

Number of cylinders _____

Bore _____

Stroke _____

Guaranteed developed horsepower at speed required for rated speed

of pump _____ hp. at _____ r.p.m.

Fuel consumption at rated speed and maximum continuous developed

horsepower _____

Total weight of engine _____

DATA SHEET

VALVES

1. 30-Inch Gate Valves:

a. Manufacturer _____

b. Type or model number _____

2. 30-Inch Flap Valves:

a. Manufacturer _____

b. Type or model number _____

3. Floor stands:

a. Manufacturer _____

b. Type or model number _____

DATA SHEET

RIGHT ANGLE GEAR UNIT

Manufacturer's name _____

Model or type _____

Horsepower rating at operating speed _____

Efficiency of unit at rated power and speed _____

Ratio of gear reduction _____

Total weight _____